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A Study On Prescribing And Utilisation Pattern Of Corticosteroids In A Tertiary Care Hospital

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ABSTRACT

Objectives: The primary objective of our study was to evaluate the prescribing and the utilization pattern of corticosteroids among the inpatients and outpatients. The study also focuses on evaluating the adverse drug effects and counselling the patients regarding the use of corticosteroids.

Methods: After obtaining approval from the Institutional Ethics Committee, a cross sectional study was carried out among 200 patients in a tertiary care hospital, Bangalore. Patients using corticosteroids were included in the study. The data were collected from the patient case profile and prescriptions and noted in a self-designed data collection form. The statistical analysis of the collected data was performed using SPSS software and MS Excel software.

Results: Out of 200, 21.50% were diagnosed with COPD, 12.50% with Bronchial Asthma, 11% with Bronchitis, 9.50% with Chronic cough, 8% with Pulmonary TB, 6% with Pneumonia, 5.50% with Lower RTI, 5% with Cholelithiasis, 4.50% with Urticaria, 4% with Rheumatoid Arthritis, 4% with Renal Calculus, 3% with Inguinal Hernia. In this study, most common corticosteroids prescribed were Budecort 53.73%, H Cort 32.24%, Foracort 6.61%, Betnesol 2.48%, Deflazacort 1.66%, Dexamethasone 1.65%, Methyl prednisolone 0.83%. Similar findings revealed in Javsen et al study. In contrast, a study by Bylappa et al found clobetasol to be the most widely utilized corticosteroid.

Conclusion: This research provides adequate insights into the overall pattern of corticosteroids used among various disorders. Patients must be provided with adequate information and knowledge in order to improve the medication adherence.

Keywords: Corticosteroids, Bronchial asthma, Bronchitis, Cholelithiasis, Urticaria, Rheumatoid arthritis.

INTRODUCTION

Glucocorticoids are one of the commonly prescribed drugs in a large fraction of patients in various departments in the hospital including Dermatology. The use of corticosteroids has brought a remarkable change in the field of dermatology, as these drugs afford a dramatic relief in inflammatory and pruritic skin conditions but may lead to deleterious effects if irrationally used. Moreover, the data related to drug usage patterns of corticosteroids in skin conditions is particularly lacking, hence it is important to study the drug prescribing pattern of corticosteroids in skin diseases.

Background: Corticosteroids can cause both immediate and delayed immune hypersensitivity reactions. Adverse immune reactions to corticosteroids can be triggered by the corticosteroid itself, or by ingredients contained in corticosteroid preparations. Immediate hypersensitivity reactions manifest with IgE-mediated symptoms, including anaphylaxis, urticaria and bronchospasm, typically within an hour after corticosteroid administration. Skin testing and

graded challenge can be useful diagnostic tools when evaluating immediate hypersensitivity reactions.

A prospective observational study was conducted for 6 months among the inpatients of Vijayanagara Institute of Medical Sciences, Ballari, Karnataka. A total number of 160 patients have participated during the study period. Out of 160 subjects, 92 were males and 68 were females. Among 160 patients, corticosteroids were prescribed more in age group 0f 40-19 years(n=34). In males, corticosteroids were prescribed more in age group of 60-69 years(n=20), whereas in females, it was more common in age group of 18-29 years(n=17).
In 160 subjects, 20 patients were found to be alcoholics, and 31 were smokers and 129 patients were non-smokers, in which non-smoker patients were more observed. In comparison for co-morbidities among 160 patients, nearly 82 patients were admitted with co-morbidities, in which 53 were males and 29 were females. Nearly 78 patients have been admitted without any co-morbidities, in which 39 were males and 39 were found to be females.

In 160 patients, the analysis of the social habits of the recruited patients revealed that 19 patients were smokers, 9 patients were alcoholic and 12 patients were both.

The analysis of the results of steroidal prescription revealed that 227 corticosteroids were utilized among 160 patients belonging to 7 types of steroids. The pattern of drugs prescribed for treating several disorders showed that Hydrocortisone was the most prescribed steroidal drug for 67(29.5%) patients, followed by Budesonide 64 (28.2%), Dexamethasone 52 (22.9%) and Prednisolone 29 (12.8%).

Among 160 subjects, we encountered with 198 drug interactions among which moderate interactions (95.9%) were found to be more.

Aim Of The Study:
The main aim of this study is to study the prescribing and utilization pattern of Corticosteroids in inpatients and outpatients.

Objectives Of Study:
The objectives of this present study are:

- Primary objective
- To evaluate the prescribing and utilization pattern of corticosteroid in tertiary carehospital.
- Secondary objectives
- To evaluate the potential adverse drug effects associated within appropriate use ofcorticosteroids.

MATERIALS AND METHODS

Methodology:
Study Design- A cross-sectional study.

Site Of The Study-
The study has been done at Sapthagiri Institute of Medical Science and Research Centre, Bangalore-90

Study Criteria-
Inclusion Criteria:

- Inpatients
- Adults and geriatrics (age 18 above)
- Male and female patients

Exclusion Criteria:

- Patients below 18 years of age
- Pregnant and lactating women
- Case file with insufficient data

Sources Of Data & Materials:

- Patient case sheet
- Patient prescription sheets
- Laboratory data
- Medication treatment chart
- Suitable self-designed data collection form.

Method Of Collecting Data:
The data required for the study has collected by reviewing the prescription list and patient case sheet. The data's collected have noted in a self-designed patient data collection form.

Study Procedure:
This is a cross sectional study, the patient who are satisfying the inclusion criteria will be enrolled into the study with the help of patient consent form. All patients admitted in the ward will be reviewed on daily basis. Patients with known complaint will be interviewed with open ended questions regarding their past medical history and recruited if they met the study criteria. Patient demographic details such as name, age, gender, education level, lifestyle, economic status, occupation, date of admission, reasons for admission, history of previous illness, social history were collected.

Information of vitals (blood pressure, temperature, pulse rate and respiratory rate), laboratory data (hematology test, blood sugar test, liver function test, urine analysis, renal function test such as serum creatinine, blood urea etc.), final diagnosis, current treatment drug regimen and other relevant data will also be collected from case sheets of patients. All the above mentioned data will be entered into the patient data collection form. Patients or their care takers are interviewed regarding patient demographic details. Treatment chart will be assessed to identify the duration of treatment and the incidence of adverse effect will be monitored. The results of collected data will be analyzed using statistical analysis and frequencies, percentages, mean values will be calculated.

Duration Of The Study:
The study was conducted for a period of six months.

Statistical Analysis:
The statistical analysis of collected data was performed using SPSS version 22 statistical software.

Has The Ethical Clearance Been Obtained From The Institution?
Yes, the ethical clearance letter no. SIMS&RC/IEC/ 14 /2022-23 dated 22/09/2022 has been obtained from the institution.

RESULTS

Patient Age Distribution:
The age of the patients from which the 200 cases were collected was divided into 7 different age brackets as expressed by the table below:

Table no.1: Patient age distribution

Age bracket	No. of cases	Percentage
18-27	35	17.59%
28-37	26	13.07%
38-47	32	16.08%
48-57	27	13.57%
58-67	40	20.10%
68-77	26	13.07%
78-87	13	6.53%
Grand Total	**199**	**100.00%**

Patient Gender Distribution:
Out of 200 cases that was collected for the purpose of the study, 128 were males and 71 were females

Table no.2: Patient gender distribution

GENDER	NO. OF PATIENTS	PERCENTAGE (%)
MALE	128	64.5%
FEMALE	71	35.5%

Corticosteroids Prescribed And Their Frequency In The Study Population:

Table no.3 Corticosteroids prescribed and their frequency in the study population

DRUGS	NO. OF PRESCRIPTIONS	PERCENTAGE (%)
FLUTICONE	1	0.83%
H CORT	39	32.24%
BETNESOL	3	2.48%
DEXAMETHASONE	2	1.65%
BUDECORT	65	53.73%
FORACORT	8	6.61%
DEFLAZACORT	2	1.66%
METHYLPREDNISOLONE	1	0.83%

Dose Wise Distribution:
Frequency of prescriptions under different doses of corticosteroids.

Table no.4 Dose wise distribution

DOSE	NO. OF PRESCRIPTIONS	PERCENTAGE (%)
FLUTICONE 100 mcg	1	0.50%
HCORT 100 mg	39	19.50%
BETNESOL 1mg	3	1.50%
DEXAMETHASONE 4mg	2	1%
BUDECORT 0.4mg	65	32.50%
FORACORT 200mcg	8	4%
DEFLAZACORT 6mg	2	1%
METHYLPREDNISOLONE 8mg	1	0.50%

Distribution Of The Total Prescriptionson The Basis Of Route Of Administration:

Table no.5 Route of administration

ROUTE	COUNT OF ROUTE	PERCENTAGE (%)
IM	1	0.43%
INHALER	134	58.01%
IV	78	33.77%
ORAL	17	7.36%
TOPICAL	1	0.43%

Common Adverse Effects Associated with The Drug Use:

Table no.6 Common adverse effects

ADVERSE EFFECTS	NO. OF CASES	PERCENTAGE
HEADACHE	16	12%
FATIGUE	20	15%
BODYACHE	22	17%
MOOD SWINGS	14	11%
PAIN	12	9%
SORE THROAT	31	24%
INDIGESTION	15	12%

Patient Counselling Wise Distributionof TotalPrescriptions:
Out of the 200 cases that were collected for the purpose of this study, for1 14 cases, patient counselling was done and for 83 cases, patient counselling was not done.

Table no.7 Patient counselling

WAS PATIENT COUNSELLING DONE	NUMBER	PERCENTAGE (%)
NO	83	41.5%
YES	114	57%

Patient Diagnosis Distribution:
In the 200 cases that were collected for the purpose of the study, various diagnosis was seen for which corticosteroids were prescribed. Most common diagnosis were as follows as presented by the graph and the char

Table no.8 Patient diagnosis distribution

DIAGNOSIS	NO. OF CASES	PERCENTAGE (%)
BRONCHIAL ASTHMA	36	12.50%
COPD	43	21.50%
URTICARIA	9	4.50%
BRONCHITIS	22	11%
RHEUMATOID ARTHRITIS	8	4%
CHOLELITHIASIS	10	5%
CHRONIC COUGH	19	9.50%
PNEUMONIA	12	6%
INGUINAL HERNIA	6	3%
LOWER RTI	11	5.50%
PULMONARY TB	16	8%
RENAL CALCULUS	8	4%

Indication Wise Distribution:
In the 200 cases that were collected for the purpose of the study, various indication for which the corticosteroids were prescribed were seen. Most common indication were as follows presented by the graph and the chart.

Table no.9 Indication wise distribution

INDICATION	NO. OF CASES	PERCENTAGE
ANTI-INFLAMMATORY	75	37.50%
ANTI-ALLERGIC	42	21%
PREVENTS WHEEZING	37	18.50%
PREVENTS PAIN	44	22%
DECONGESTANT	2	1%

DISCUSSION

Corticosteroids are among the widely used classes of medicine used in dermatological diseaseas both short-term and long-term treatments, although they are accompanied with a multitude of side effects. Prescriptions should be audited on a regular basis to improve prescribing quality, decrease side effects and prescribing errors, provide criticism to physicians, and implementation of standard treatment guideline. The study goal was to gather baseline data by assessing corticosteroid prescribing patterns and evaluating monotherapy and the use of co- administered medicines in conjunction with corticosteroids in skin diseases.

Out of the 200 cases collected, the majority (20%) of the patients wer e between the ages of 58 to 67, 128 (64.5%) were male and 71 (35.5%) were female. This is similar to the study conducted by Bylappa bk et al. [39]

Out of 200, 21.50% were diagnosed with COPD, 12.50% with Bronchial Asthma, 11% with Bronchitis, 9.50% with Chronic cough, 8% with Pulmonary TB, 6% with Pneumonia, 5.50% with Lower RTI, 5% with

holelithiasis, 4.50% with Urticaria, 4% with Rheumatoid Arthritis, 4% with Renal Calculus, 3% with Inguinal Hernia. The common diagnosis was found to be COPD and Bronchial Asthma. In this study, most common corticosteroids prescribed were Budecort 53.73%, H Cort 32.24%, Foracort 6.61%, Betnesol 2.48%, Deflazacort 1.66%, Dexamethasone 1.65%, Methyl prednisolone 0.83%. Similar findings revealed in Javsen et al study. In contrast, a study by Bylappa et al found clobetasol to be the most widely utilized corticosteroid. Similar to this study, Haiya J S. et al found that fluorinated glucocorticoids Betamethasone and Clobetasol were the most regularly prescribed, whereas non-fluorinated glucocorticoids Prednisolone and Mometasone were the least usually administered.

Out of the 200 cases, patient counseling was done for 114 cases (57%). In this study, most common route of administration prescribed was Inhaler (58.01%), IV (33.77%), Oral (7.36%), IM(0.43%) and Topical(0.43%). In the 200 cases that were collected for the purpose of the study, various indication for which the corticosteroids were prescribed were seen. Most common indication were Anti- inflammatory (37.50%), to prevent pain (22%), Anti-allergic (21%), to prevent wheezing (18.50%) and Decongestant (1%). Out of the 200 cases, common adverse effects associated with the drug use were sore throat(24%), Body ache (17%), Fatigue (15%), Headache(12%), Indigestion (12%), Mood swings (11%), Pain (9%).

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